

IN THE SUPREME COURT OF MISSOURI
EN BANC

STATE BOARD OF REGISTRATION)	
FOR THE HEALING ARTS,)	
)	
Plaintiff/Appellant,)	
)	
vs.)	No. 85275
)	
EDWARD W. MCDONAGH,)	
)	
Defendant/Respondent.)	
)	

Appeal from the Circuit Court
Of Cole County

The Honorable Byron Kinder
Circuit Judge

Brief Of Amici Curiae
Missouri State Medical Association
Missouri Association of Osteopathic Physicians & Surgeons

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Interest Of The Amici

The Missouri State Medical Association (“MSMA”) is an association of Missouri physicians, headquartered in Jefferson City, Missouri. MSMA has more than 5,000 members. MSMA represents its members’ interests before the state legislature, state agencies, and state courts.

The Missouri Association of Osteopathic Physicians & Surgeons (“MAOPS”) is the professional association representing over 1,000 Osteopathic physicians in Missouri, as well as 1,500 Osteopathic medical students. The mission of MAOPS is to serve as an advocate for the Osteopathic physicians and their patients. Further, MAOPS protects the practice environment of the physicians and works with other entities interested in improving the health of Missourians.

Resolution of the legal issue discussed in this brief is of great interest to the MSMA, the MAOPS, and their members. Litigation involving medical providers almost always requires expert testimony. The MSMA and the MAOPS therefore have a strong interest in what standard governs the admissibility of expert testimony. They have an equally strong interest in assuring that the standard for admissibility of such testimony is both reliable and predictable.

On both counts, the standard set forth in § 490.065, R.S.Mo., is far superior to that set forth in Frye v. United States, 293 F. 1013 (D.C. Cir. 1923). Frye focuses on whether the expert’s conclusions have “general acceptance” in the

field. By contrast, § 490.065 focuses on the expert's methodology: whether the techniques employed are sufficiently reliable and sufficiently relevant that the opinion those techniques produce will assist the trier of fact. Thus, § 490.065 looks to the foundation for the opinion rather than its result.

Section 490.065 is also far superior to Frye in terms of reliability and predictability. In many cases, there will be no scientific consensus on an issue. In others, experts on both sides claim the consensus supports their position. By contrast, the reliability factors that courts have developed under rules like § 490.065 are capable of objective verification.

Because the practice of medicine involves the scientific method, the MSMA and the MAOPS also have a unique perspective on whether § 490.065 or Frye best fits the scientific method. There is no such thing as a scientific truth. There are only hypotheses, the validity of which is tested by the scientific method. As scientists acquire more data or better techniques, they revisit those hypotheses and sometimes reject them. True science is therefore far more about methods than results. The legal focus should correspondingly be on methods rather than results.

Argument

I. As a Matter Of Law, § 490.065 Supercedes The Common Law Rule Of Frye.

In 1989, the legislature enacted § 490.065, the first subsection of which provides:

In any civil action, if scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education may testify thereto in the form of an opinion or otherwise.

That subsection is identical to original Rule 702 of the Federal Rules of Evidence, construed in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993).

Subsection 3 of the statute provides:

The facts or data in a particular case upon which an expert bases an opinion or inference may be those perceived by or made known to him at or before the hearing and must be of a type reasonably relied upon by experts in the field in forming opinions or inferences upon the subject and must be otherwise reasonably reliable.

That subsection is similar to Rule 703 of the Federal Rules of Evidence, although § 490.065.3 places more emphasis on reliability than does Rule 703.

This Court has always recognized that “the legislature has plenary power to prescribe or alter rules of evidence, including those involving competency of witnesses.” State v. Williams, 729 S.W.2d 197, 201 (Mo. banc), cert. denied, 484 U.S. 929 (1987). See, e.g., Rodriguez v. Suzuki Motor Corp., 996 S.W.2d 47, 55 (Mo. banc 1999). Indeed, one of the few limitations on this Court’s rulemaking powers relates to the rules of evidence. Mo. Const. Art. 5, § 5.

Thus, while the courts of appeals have been unclear about the effect of § 490.065, this Court's opinions have consistently held that the statute governs the admissibility of expert testimony. E.g., *Alcorn v. Union Pacific R.R.*, 50 S.W.3d 226, 245 (Mo. banc 2001) (whether experiment or simulation “will aid the jury in deciding the issues of the case” is “the same standard as for expert testimony” under “[s]ection 490.065”); *Johnson v. State*, 58 S.W.3d 496, 499 (Mo. banc 2001) (“section 490.065 recognizes that an expert witness may be qualified on foundations other than the expert's education or license”) (citations and internal punctuation omitted).

This Court has addressed the precise issue before it now – whether the reliability requirements of the statute trump Frye – only twice. In *Callahan v. Cardinal Glennon Hosp.*, 863 S.W.2d 852 (Mo. banc 1993), plaintiffs argued that “Missouri should no longer follow the Frye test” because § 490.065 superceded Frye. Defendant argued that the expert opinions “failed to meet the requirements of Frye.” 863 S.W.2d at 860. Because defendant had not objected at trial, this Court held that no claim of error had been preserved and “it would be inappropriate” to decide the issue. Id.

In *Lasky v. Union Electric Co.*, 936 S.W.2d 797 (Mo. banc 1997), however, this Court clearly held that § 490.065 is controlling. Lasky involved exposure of firefighters and police to polychlorinated biphenyls (PCBs). Plaintiffs' expert testified that this exposure caused them to develop skin rashes:

The trial court did not commit reversible error in finding under the law at the time of trial that this testimony constituted substantial evidence that tended to prove that plaintiffs developed skin rashes from a single exposure to PCBs. However, on remand the trial court shall be guided by section 490.065, R.S.Mo., in evaluating the admission of expert testimony.

936 S.W.2d at 801. The final sentence of the opinion repeated that injunction. Id. at 802.

The holding in Lasky could not be clearer: § 490.065 provides the standard for the admissibility of expert testimony.

II. As A Matter Of Policy, § 490.065 Is Far Superior To Frye.

The issue before the Court is an old one: when should a Galileo be allowed to testify against the conventional wisdom of the time? In 1600, conventional wisdom was that the sun revolved around the earth. A century later, conventional wisdom was the exact opposite.

Under Frye, Galileo cannot testify until the paradigm has shifted. Under § 490.065, Galileo can testify so long as his methods follow scientific principles. The latter approach allows the trial court to evaluate the proposed opinion under objective scientific principles. It requires the trial court to focus on foundation rather than the conclusion. And it fits far more comfortably with what scientists actually do. Section 490.065 is far superior to Frye.

A. By Focusing On Reliability, § 490.065 Provides Objective Criteria To Assess Proposed Expert Opinions.

One of the most important aspects of a rule of procedure is that it produces predictable results. Section 490.065 requires that an expert opinion rest on data that is “of a type reasonably relied on by experts in the field” and is “otherwise reasonably reliable.” This focus on reliability requires the trial court to determine whether the expert is behaving like a scientist. Since objective criteria govern that determination, § 490.065 produces far more predictable outcomes than does Frye.

In Daubert, the United States Supreme Court held that the comparable provisions of Rule 702 of the Federal Rules of Evidence superceded the Frye standard. 509 U.S. at 587. Instead of general acceptance, the standard under Rule 702 is reliability: “the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.” Id. at 589. Daubert suggested four non-exclusive criteria for conducting the reliability analysis:

- Whether the theory or technique “can be (and has been) tested.” This factor is important because the ability to generate hypotheses and test them “is what distinguishes science from other fields of human inquiry.” 509 U.S. at 593.
- Whether the theory or technique “has been subjected to peer review and publication.” While “not necessarily correlate[d] with reliability,” this factor is important because “submission to the

scrutiny of the scientific community . . . increases the likelihood that substantive flaws in methodology will be detected.” Id.

- The “known or potential rate of error.” 509 U.S. at 594.
- “[G]eneral acceptance’ can yet have a bearing on the inquiry”; the “reliability assessment does not require, though it does permit,” such consideration. Id.

The United States Supreme Court has emphasized that these four factors “do not constitute a definitive checklist or test.” Kumho Tire Co. v. Carmichael, 526 U.S. 137, 150 (1999) (emphasis original) (citations and internal punctuation omitted). Because “there are many different kinds of experts, and many different kinds of expertise,” id., trial courts will use many different criteria to assess reliability. Other factors that courts have considered include the relationship of the technique to established reliable models; the qualifications of the expert; the non-judicial uses to which the technique has been put; the logical consistency of the hypothesis; and the precision of the result. In re TMI Litig. Cases Consol. II, 911 F. Supp. 775, 787 (M.D. Pa. 1996).

The critical fact about the Daubert reliability factors is that, for the most part, “they are relatively objective.” Elcock v. Kmart Corp., 233 F.3d 734, 751 n.8 (3rd Cir. 2000) (citations and internal punctuation omitted). Either a hypothesis can be tested or it cannot. Either a hypothesis makes logical sense or it does not.

In turn, the objective nature of these criteria means that they produce predictable and reliable results. Sometimes they will exclude testimony that Frye

might permit; sometimes they will admit testimony that Frye would exclude. In each case, however, they assure that scientists employing the scientific method will testify, no matter what their results. Galileo's opinions about the solar system would be admissible.

Frye's focus on conventional wisdom is far less predictable. Especially on cutting-edge scientific issues, there may be no general consensus about the correct answer. Or the parties' experts each may claim, in complete good faith, that his or her opinion reflects the scientific mainstream.

The Western District's badly fractured opinion in State v. Butler, 24 S.W.3d 21 (Mo. App. 2000), illustrates the unpredictability of the Frye standard. Butler was a pedophile rape case in which the key testimony linking the defendant with the crime came from the State's expert on hair. The expert testified that hairs found on the victim's clothing "matched" sample hairs from the defendant; that there were numerous points of similarity between those hairs; and that there were black spots on the pubic hairs which were so unique she had never before seen them. 24 S.W.3d at 29-30. She also testified, to a reasonable degree of certainty, that the hairs on the victim's clothing came from defendant. Id. at 26. Defense counsel objected to none of this testimony.

For seven of the judges, the failure to object was dispositive. But there was also a spirited debate among the judges about whether the evidence passed muster under Frye. Writing for himself and three other judges, Judge Lowenstein held that statistical studies to support the expert's opinions were not always necessary.

24 S.W.3d at 29, citing State v. Kleypas, 602 S.W. 2d 863 (Mo. App. 1980). He also cited several cases from Frye jurisdictions to the effect that it was permissible for an expert to opine with reasonable certainty that a particular hair came from a particular person. 24 S.W.3d at 28 n.4. Judge Lowenstein thought that the expert's techniques "were accepted and standard . . . in the scientific community." Id. at 30.

Judge Breckenridge, writing for herself and two other judges, disagreed with that conclusion. She thought that "the state of the science" allowed an expert to opine only that an individual "is a possible source of a hair, not that the hair came from any particular individual." 24 S.W.3d at 38:

The scientific community does not accept a hair comparison expert utilizing personal experience to estimate probabilities since it is generally accepted that even controlled scientific studies cannot sufficiently determine reliable probabilities.

Id. Judge Breckenridge concurred in the result based on her belief that the lack of objection allowed the court to consider otherwise inadmissible evidence in determining submissibility. "[T]he evidence, including Ms. Duvenci's positive identification testimony, is sufficient to provide a reasonable juror with proof of Mr. Butler's guilt beyond a reasonable doubt." Id. at 44.

Judge Stith, writing for herself and two other judges, dissented. She believed that the expert's techniques were so flawed that they did not constitute substantial evidence supporting the conviction even absent an objection:

While attempts to quantify the probabilities in human head and pubic hair have been made, Ms. Duvenci herself testified, and the experts agree, that those statistics have not been accepted in the scientific community. Without the ability to quantify probabilities, the scientific community cannot determine the significance of the match of two hairs

24 S.W.3d at 49 (citations and internal punctuation omitted).

This attempt to apply Frye thus produced three different and totally incompatible results. Four judges thought the expert's opinions satisfied conventional wisdom. Three judges thought they did not but were nonetheless substantial evidence of guilt. Three judges thought the opinions so far departed from conventional wisdom that, even without objection, they were not substantial evidence. A standard that produces such disparate results is simply unsatisfactory.

Courts attempting to apply Frye to hypnotically induced recall have also produced chaos. As this Court recognized in Alsbach v. Bader, 700 S.W.2d 823 (Mo. banc 1985), courts have reached three different outcomes:

- Some courts hold that hypnotically induced testimony is per se admissible, the fact of hypnosis going only to the weight and credibility of the testimony. 700 S.W.2d at 824-25, citing State v. Greer, 609 S.W.2d 423 (Mo. App. 1980), vacated on other grounds, 450 U.S. 1027 (1981).
- Some courts hold that hypnotically induced testimony is admissible if certain procedural safeguards are followed. 700 S.W.2d at 826.

That was Judge Blackmar's approach in his dissent in Alsbach, and the one adopted by the Eighth Circuit. 700 S.W.2d at 830, citing Sprynczynatyk v. General Motors Corp., 771 F.2d 1112 (8th Cir. 1985).

- Some courts hold that hypnotically induced testimony is per se inadmissible, the result the majority reached in Alsbach. 700 S.W.2d at 830.

The reason for these unsatisfactory outcomes is simple: the Frye test is simply incapable of fair and predictable application. Because Daubert and § 490.065 rely on objective criteria about the scientific method, courts can apply that standard fairly and predictably.

B. Section 490.065 Focuses On The Reliability Of The Expert's Technique.

Frye requires a court to reject an expert opinion unless the “principle or discovery” on which the opinion is based has “gained general acceptance” in the relevant scientific community. 293 F. at 1014. In practice, that rule often degenerates into an inquiry about whether the expert's **conclusion** has widespread acceptance, rather than the methodology. By contrast, § 490.065 focuses on the methods and inquires whether they are reliable.

In theory, Frye asks whether the opinions are “based on scientific principles that are generally accepted in the relevant scientific community.” If so, the

opinions are sufficiently reliable to be admissible. Butler, 24 S.W.3d at 32 n.8. Do “scientific principles” mean methods of practicing science or the results of that practice? All too often, even the most conscientious judges focus on the latter rather than the former.

This Court’s opinion in State v. Ervin, 848 S.W.2d 476 (Mo. banc), cert. denied, 510 U.S. 826 (1993), is a good illustration. Ervin killed a friend after a night of drinking. He offered the testimony of a psychologist that he acted in the midst of an alcoholic blackout, and was therefore unable to act knowingly. This Court affirmed the exclusion of such evidence, because the **opinion** was not generally accepted:

At no point in Dr. Jolly’s testimony did he testify that his theories on blackout were accepted in the scientific community. Admission of an expert’s opinion concerning scientific evidence depends upon wide acceptance in the relevant scientific community of its reliability.

848 S.W.2d at 480. Accord, State v. Biddle, 599 S.W.2d 182, 191 (Mo. banc 1980) (“polygraph examination results lack widespread scientific approval”).

In some cases, the courts require **both** the method **and** the result to achieve general acceptance. Judge Lowenstein’s concurring opinion in Butler, for example, held that objections to the “scientific principles and the grounds upon which the opinion is based” required the trial court to determine whether “those principles and tests have gained scientific acceptance in the scientific community.” 24 S.W.3d at 25.

Ironically, the Board of Healing Arts' position in this very appeal does not distinguish between the methodology and the results. The Board has never argued that Dr. McDonagh's experts employed improper methods to analyze the effectiveness of chelation therapy. The Board's only argument is that the general consensus in the medical community disagrees with the results of those methods.

The central problem with Frye is that it equates "general acceptance" to reliability, rather than addressing reliability directly as do § 490.065 and Daubert. One consequence of that equation is an inevitable confusion between the methods and the results. This confusion will not occur if the courts focus on the real issue – the reliability of the methods employed to reach the conclusion.

C. Section 490.065 Accommodates The Scientific Method Far Better Than Does Frye.

Another problem with Frye is that it is not consistent with how science actually works. Science is not about consensus but about experimentation. To a true scientist, there is no such thing as immutable truth, only a series of hypotheses to be tested and either validated or rejected. It is the process by which those hypotheses are tested that counts, not the consensus.

As the United States Supreme Court explained in Daubert:

[I]t would be unreasonable to conclude that the subject of scientific testimony must be "known" to a certainty; arguably there are no certainties in science. Indeed, scientists do not assert that they know what is

immutably true – they are committed to searching for new, temporary theories to explain, as best they can, phenomena. Science is not an encyclopedic body of knowledge about the universe. Instead, it represents a process for proposing and refining theoretical explanations about the world that are subject to further testing and refining.

509 U.S. at 590 (emphasis original) (citations and internal punctuation omitted).

The Copernican Revolution is a perfect illustration of the way in which scientific hypotheses evolve. For centuries, the earth-centric Ptolemaic theory of the solar system was the conventional wisdom. For most purposes, it served very well. Indeed, for such star-based applications as celestial navigation, it is still used today. T. Kuhn, The Structure of Scientific Revolutions at 68 (1996 Ed.).

As scientists developed more accurate data, however, the Ptolemaic model grew increasingly inaccurate. And the modifications that scientists made to account for those inaccuracies made the model so cumbersome that it finally collapsed of its own weight. Id. at 68-69.

Obviously, most advances in science are marginal rather than revolutionary. But the process is the same. The flexible standards of § 490.065 and Daubert are well-suited to respond to advances in scientific thinking. By contrast, under Frye, once a court has ruled that a particular theory is – or is not – “generally accepted,” the discussion is closed. Future litigants do not even get a hearing on the issue. E.g., State v. Davis, 860 S.W.2d 369, 373-74 (Mo. App. 1993) (“[b]ecause the Davis court has ruled that DNA testing is generally accepted

in the scientific community, appellant's claim for a hearing to determine the admissibility of DNA evidence was properly denied").

In law, adherence to precedent is essential to predictable, stable rules of law. In science, adherence to precedent is wholly inconsistent with the scientific method. It should be obvious that, by focusing on the expert's methods rather than his or her conclusions, § 490.065 and Daubert are far more consistent with the way in which actual scientists conduct their business.

Conclusion

For these reasons, the MSMA and the MAOPS respectfully submit that the Court should hold that § 490.065 overrules Frye in favor of the reliability standard enunciated in Daubert. The MSMA and the MAOPS express no opinion on the admissibility of the particular testimony at issue in this case or the ultimate disposition of the appeal.

Respectfully Submitted,

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Certificate of Compliance

The undersigned counsel hereby certifies pursuant to Rule 84.06(c) that this brief (1) contains the information required by Rule 55.03; (2) complies with the limitations contained in Rule 84.06(b); and (3) contains 3,791 words, exclusive of the sections exempted by Rule 84.06(b)(2) of the Missouri Supreme Court Rules, based on the word count that is part of Microsoft Word 1997. The undersigned counsel further certifies that the diskette has been scanned and is free of viruses.

Mark G. Arnold

Certificate of Service

I certify that one copy of this brief and one copy on floppy disk, as required by Missouri Supreme Court Rule 84.06(g), were served on each of the counsel identified below by placement in the United States Mail, postage paid, on August 29, 2003:

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